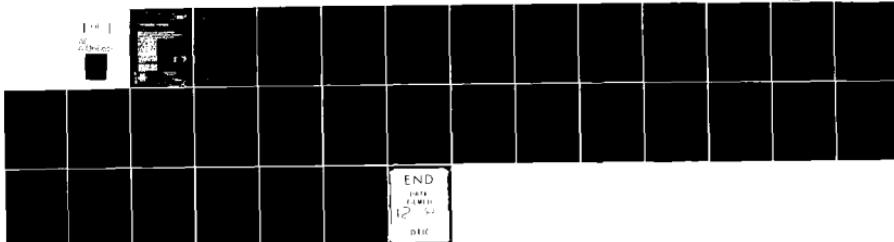


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GENERAL ACCOUNTING OFFICE WASHINGTON DC ENERGY AND M--ETC F/G 21/4  
DOE'S ALCOHOL FUELS AWARDS PROCESS RESULTED IN QUESTIONABLE AWA--ETC(II)  
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UNCLASSIFIED GAO/EMD-81-125

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REPORT BY THE

~~Contractor's Council~~

OF THE UNITED STATES

~~1982 Annual Report  
Annual Selections  
and Awards~~

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COMPTROLLER GENERAL OF THE UNITED STATES  
WASHINGTON D.C. 20448

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The Honorable Virginia Smith  
House of Representatives

The Honorable John D. Dingell  
Chairman, Committee on Energy  
and Commerce  
House of Representatives

The Honorable Richard A. Gephardt  
House of Representatives

The Honorable Thomas F. Eagleton  
United States Senate

As requested in your letters of December 19, 1980, January 8, 1981, January 22, 1981, and December 12, 1980, respectively, and in subsequent discussions with your offices, this report addresses several issues concerning the alcohol fuels portion of the Department of Energy's feasibility study and cooperative agreement awards. The report contains recommendations to the Department of Energy aimed at improving the process for making future awards. It also includes matters for consideration by the Congress dealing with enhancing the involvement of small businesses in future awards.

As requested by your respective offices, we did not obtain official comments from the Department of Energy on this report. Also, unless you publicly announce its contents earlier, we plan no further distribution of this report until 7 days from the date of the report. At that time we will send copies to interested parties and make copies available to others upon request.

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*Milton J. Duran*

Acting Comptroller General  
of the United States

REPORT BY THE COMPTROLLER  
GENERAL OF THE UNITED STATES

DOE'S ALCOHOL FUELS AWARDS  
PROCESS RESULTED IN QUESTION-  
ABLE AWARD SELECTIONS AND  
LIMITED SMALL BUSINESS SUCCESS

D I G E S T

As part of its alternative fuels program, the Department of Energy (DOE) made two rounds of alcohol fuels feasibility study grants and cooperative agreement awards. In response to requests by Representatives Virginia Smith, John D. Dingell, Chairman of the House Committee on Energy and Commerce, and Richard A. Gephardt, and Senator Thomas F. Eagleton, the General Accounting Office (GAO) evaluated (1) the criteria and process DOE used to evaluate proposals and make award selections and (2) the extent to which awards were made to large and small businesses.

DOUBTS CONCERNING THE INTEGRITY  
OF THE PROCESS USED TO SELECT  
ALCOHOL FUELS AWARDEES

Certain events which occurred during the process DOE used to select alcohol fuels feasibility study and cooperative agreement awardees reduced the integrity of the selection process and cast doubt over whether DOE selected the best proposals for award. DOE devoted substantial effort to conducting detailed technical evaluations of the proposals it received yet frequently disregarded these evaluations in making award selections. It often passed over proposals with high technical ranking to select those with much lower ranking. In one competition, DOE selected the 150th ranked proposal for award while passing over proposals ranked as high as 12th. (See p. 6.)

The primary rationale given by DOE for selecting lower ranked proposals over higher ranked proposals was the desire to achieve non-technical objectives set forth in its program policy factors. While consideration of such factors in the selection process is valid, GAO believes that their application in the alcohol fuels competitions was excessive. In one competition, program policy factors were applied in a manner to justify passing over proposals with technical evaluation scores as

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AUGUST 21, 1981

much as 258 points (out of 1,000 points possible) better than proposals which were selected. The policy factors were similarly applied in the other competitions as justification for selecting proposals with lesser technical merit. (See p. 7.)

In addition to the excessive application of the program policy factors, DOE sometimes applied these factors inconsistently. DOE sometimes applied a factor at one point in making its selection decisions, but did not apply it at other points. (See p. 8.)

DOE did not have guidelines for applying program policy factors during the feasibility study and cooperative agreement awards selection process. Selection officials had the flexibility to apply or not apply the factors as they wished. GAO believes DOE should establish and implement guidelines setting appropriate limits on the importance program policy factors should have in the selection process, and requiring that when applied, the factors be applied consistently. (See p. 9.)

The integrity of DOE's awards selection process was further reduced in one of the competitions by altered cost and business management evaluations. In addition to scoring each proposal according to technical criteria, DOE evaluated the cost reasonableness and business management aspects of each cooperative agreement proposal. During the first round cooperative agreement competition, GAO found that the ratings on nearly half of the proposals were altered. (See p. 10.)

After the evaluation team had developed consensus evaluations, one team member, with the approval of DOE's overall proposal evaluation manager, independently changed 64 out of 139 evaluations from "satisfactory" to "unsatisfactory" without consulting the other members of the evaluation team. While the proposal evaluation manager said the alterations were not intended to impact on the awards selections, the top ranked proposal, which had its rating altered, was not selected. The DOE Under Secretary cited the proposal's rating, which had been changed from "satisfactory" to "unsatisfactory," as a decisive factor in the decision not to select this project.

DOE has no guidelines for treating minority viewpoints during the evaluation process. To enhance the integrity of future proposal evaluations, GAO believes DOE needs to establish guidelines for dealing with minority viewpoints on evaluation teams.

The failure to select awardees in accordance with technical merit was not restricted to the feasibility study and cooperative agreement competitions. GAO found that this also occurred in DOE's small-scale alcohol fuels technology grants competition. During the first phase of this two-phased competition, where nearly 80 percent of the awards were made, DOE frequently selected lower ranking proposals over higher ranking proposals. DOE took steps, however, to improve its selection process during the second phase of the competition and selected awardees closely in accordance with technical merit. (See p. 12.)

#### AWARDS TO SMALL BUSINESSES LESS THAN ANTICIPATED

The small business share of DOE's alcohol fuels feasibility study and cooperative agreement awards was limited. Small businesses received about 25 percent of the number of awards and only about 11 percent of the funding. Large businesses received almost 90 percent of the funds. Because of a greater DOE emphasis on small business participation, the less capital-intensive nature of alcohol fuels technology, and the larger number of high-quality small business proposals, DOE anticipated that small business success would be better in the alcohol fuels portion of the competitions than in the non-alcohol fuels portion. GAO found, however, that small businesses received an even smaller share of the funding in the alcohol fuels technology than it did in the non-alcohol fuel technologies. (See p. 16.)

The approach DOE used in conducting its competitions contributed to the limited small business success. The criteria and process used to evaluate proposals provided an advantage to large companies. Concerning the evaluation criteria, demonstrating the likelihood that the proposed project could be carried through to successful commercialization was considered by

DOE to be the most crucial aspect of the proposal. In this context, corporations with large technical and support staffs, considerable financial resources, and extensive past experience were in a better position to demonstrate such likelihood, and justify an award, than a small business without such resources. (See p. 17.)

The nature of the process used to evaluate proposals in the alternative fuels competition also contributed to the better success of large corporations. As structured by DOE, the process primarily involved a competition among proposals. No site visits or supplementary discussions with proposers were permitted. Under these circumstances, large businesses who are more likely to have considerable proposal writing resources and experience, had an advantage over small business proposers without such resources and experience.

#### RECOMMENDATIONS

To enhance the integrity of DOE's proposal evaluation and selection process in any future alternative fuels competitions, GAO recommends that the Secretary of Energy establish guidelines governing the application of program policy factors in the selection process and the treatment of minority viewpoints during the proposal evaluation process. Concerning the program policy factors, these guidelines should set forth appropriate limits on the importance attributed to program policy factors in the selection process and direct that when applied, the factors are applied consistently to all proposals. With respect to the treatment of minority views, the guidelines should provide an equitable mechanism for hearing and considering those views, perhaps in minority report format, while still maintaining the consensus viewpoint for consideration.

To improve the success of small businesses in obtaining any future DOE alternative fuels awards, the Secretary should strengthen DOE's commitment toward enhancing small business involvement. While implementing this commitment could involve a number of specific steps, GAO believes some of the more obvious ones include providing assistance to help small businesses prepare better proposals, placing small business advisors on

proposal evaluation teams, and establishing targets for small business involvement. (See p. 22.)

MATTERS FOR CONSIDERATION  
BY THE CONGRESS

Large businesses dominated awards in both the alcohol fuels and non-alcohol fuels aspects of DOE's alternative fuels competitions. Concerning the non-alcohol fuels awards, this result may be attributable in large measure to the capital-intensive nature of the technologies. Alcohol fuels plants, however, require considerably less capital. Accordingly, small businesses should have been able to compete for awards more effectively. Instead, they received a smaller share of available funding. Because of this, we are concerned that small businesses will also not fare well in any future competitions. While we have made recommendations to the Secretary of Energy aimed at enhancing small business involvement in future competitions, the Congress may also want to closely monitor the success of small businesses. In the event that a desired level of small business success is not achieved, the Congress may want to consider enacting legislation to obtain more substantial participation by small businesses in these activities.

AGENCY COMMENTS

As requested, GAO did not obtain official DOE comments on this report.

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<u>ABBREVIATIONS</u>	
DOE	Department of Energy
GAO	General Accounting Office
OAF	Office of Alcohol Fuels

## CHAPTER 1

### INTRODUCTION

In response to requests by Representatives Virginia Smith, John D. Dingell, Chairman of the House Committee on Energy and Commerce, and Richard A. Gephardt, and Senator Thomas F. Eagleton, 1/ we reviewed selected aspects of the Department of Energy's (DOE's) alternative fuels program. On May 15, 1981, we issued an interim report entitled, "Large Businesses Dominated Awards Made Under DOE's Alternative Fuels Program" (EMD-81-86) which addressed the portion of our review dealing with non-alcohol fuels technologies such as coal gasification and oil shale. This report addresses those aspects of DOE's alternative fuels program aimed at developing and commercializing alcohol fuels. 2/

### OBJECTIVES, SCOPE, AND METHODOLOGY

In examining the alcohol fuels aspects of DOE's alternative fuels program, the requestors asked that we assess the evaluation criteria and process used by DOE to select recipients of awards under its feasibility study and cooperative agreement competitions. In addition, they expressed concern that small businesses were not receiving their fair share of the awards and asked that we determine the percentage of funds which went to large and small businesses in the competitions. Two requestors also asked that we review the criteria and procedures used by DOE to select recipients of alcohol fuels loan guarantee awards. As agreed with the requestors' offices, however, we did not review these awards because subsequent to the requests and before any awards were made, the administration took steps to rescind all funds for alcohol fuel loan guarantees and DOE sealed all records associated with the competition. While Public Law 97-12, signed on June 5, 1981, restored partial funding for the loan guarantees, records dealing with DOE's process for evaluating and selecting proposals were not available in time for our review.

Hence, we directed our review primarily at the awards made under the feasibility study and cooperative agreement competitions. We examined these awards from two perspectives (1) the criteria and process DOE used to evaluate proposals and make award selections and (2) the extent to which awards were made to large and small businesses. To examine the criteria and process

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1/The request letters were dated Dec. 19, 1980, Jan. 8, 1981, Jan. 22, 1981, and December 12, 1980, respectively.

2/For purposes of this report, alcohol fuels means ethanol or methanol produced from biomass.

used by DOE to make these awards, we reviewed solicitation documents, proposal evaluation reports, selection statements, and related documentation. In particular, we examined DOE's proposal evaluations and resulting rankings and determined whether proposals receiving top evaluation ratings were the ones selected. In those instances where proposals receiving top rankings were not selected, we obtained and reviewed the selection rationale to determine what other selection considerations were being applied. Our efforts were focused on DOE's evaluation criteria and process; we did not attempt to assess the merits of individual proposals.

We supplemented our analysis of the criteria and process used during the feasibility study and cooperative agreements competitions by reviewing a somewhat similar competition for awarding small-scale alcohol fuels technology grants. We conducted this analysis primarily to provide a perspective on whether the conditions present during the feasibility study and cooperative agreements competitions were unique to those competitions.

In examining the extent awards went to large and small businesses, we compiled financial background information on the awardees from a variety of sources including individual proposals, corporate annual reports, and available reference materials, such as Moody's manuals, Fortune, Directory of Corporate Affiliations, and Who Owns Whom: North America. We included as small businesses those awardees that classified themselves as such in their proposals. 1/ Financial information was not available on several awardees and we tabulated these as "other." We considered the balance of the awardees to be large businesses. To obtain a perspective on the fairness of DOE's criteria and process as they affected large and small businesses, we interviewed DOE officials involved in the competitions. We also interviewed representatives of small businesses, both winners and losers, to obtain their viewpoints on the competitions.

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1/In conducting its competitions, DOE had proposers classify themselves as small businesses in their proposals, when applicable. DOE did not verify these self-classifications nor did DOE apply its own definition of a small business. DOE defines a small business concern as one, including its affiliates, which is independently owned and operated, is not dominant in the field of operation in which it is bidding on Government contracts, and which can further qualify under criteria set forth in regulations of the Small Business Administration.

## BACKGROUND

Under various pieces of legislation, 1/ DOE was authorized and funded to carry out a program aimed at stimulating domestic commercial production of alternative fuels. As part of its program to achieve that objective, DOE conducted two rounds of competitions for awarding feasibility study grants and cooperative agreements in a variety of alternative fuels technologies including alcohol fuels. Feasibility study awards were to accelerate the early stages of a project's activity by helping fund assessments of the technical and economic feasibility of the plant proposed or such activities as preliminary design work and environmental monitoring and analysis. Cooperative agreements were to advance projects from the feasibility stage to construction and operation by funding activities such as preparing final designs, finalizing necessary permits, and, in certain cases, assisting in actual plant construction.

To initiate its competitions, DOE issued first round solicitations on February 25, 1980, and second round solicitations on August 1, 1980. The first round solicitations involved \$200 million in available funding and DOE eventually made 101 awards for feasibility studies and 9 awards for cooperative agreements. Of the 110 total awards, 46 awards totalling about \$54 million were made in the alcohol fuels area. In the second round, available funding was increased to \$270 million and DOE selected 56 feasibility study proposals and 23 cooperative agreement proposals for award. Of these, 18 awards totalling about \$72 million were for alcohol fuels projects. Thus, 64 awards were made in the alcohol fuels area, with associated funding of about \$125 million.

Although selections for the second round were made, no funding was actually provided. Final awards were being negotiated when, as part of recent budgetary initiatives, funding for the second round competition was rescinded by Public Law 97-12. While the second round awardees did not receive funding, they nonetheless were selected for award. Because we were primarily interested in the criteria and process used to select awardees, we included second round awards in our analysis even though these awards were not funded.

The process used to evaluate feasibility study and cooperative agreement proposals and select awardees was generally the same for each technology and remained essentially unchanged for

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1/Supplemental Appropriations and Rescission Act, 1980 (Public Law 96-304, July 8, 1980); Energy Security Act (Public Law 96-294, June 30, 1980); Department of the Interior and Related Agencies Appropriations for Fiscal Year 1980 (Public Law 96-126, Nov. 27, 1979); and Federal Nonnuclear Energy Research and Development Act of 1974 (Public Law 93-577, Dec. 31, 1974).

both rounds of the competitions. In each case, DOE eliminated proposals which were not responsive to the solicitations. The remaining proposals received both a technical and cost evaluation from evaluation teams 1/ established in each technology area.

In the technical evaluation, the teams evaluated each proposal in accordance with four general criteria. These were (1) commercial viability of the project; (2) consideration of environmental, health, safety, and socioeconomic issues; (3) technical approach; and (4) proposer capability. More specific criteria were established under these general criteria. The evaluation teams developed a point score (1,000 points possible) for each proposal and ranked them accordingly. In making cost evaluations, the teams were primarily interested in assessing the proposed project's cost characteristics and determining whether the project's proposed total costs were realistic and reasonable.

In addition to receiving a technical and cost evaluation, each cooperative agreement proposal received an evaluation of the business management ability of each proposer. This involved evaluating nine factors including the proposer's financial plan, the administrative support available to the proposer, and the financial capability of the proposer to fund his share of the project.

The teams reported the results of their evaluations to the next level of review--the Source Evaluation Boards. 2/ These Boards (one in each round for the feasibility study proposals and one in each round for the cooperative agreement proposals) reviewed and finalized the evaluations supplied by the evaluation teams and forwarded them to the next level of review--the Senior Review Board. 3/ The Senior Review Board reviewed the evaluation reports submitted by the Source Evaluation Boards and applied eight "program policy factors" which addressed supplementary program objectives such as the need to have geographic balance and technological diversity in projects selected for awards, and the desire to have substantial involvement of small and disadvantaged businesses or Indian tribes. A complete listing of the program

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1/The evaluation teams were made up of officials from DOE headquarters and field offices, Government-owned, contractor-operated laboratories, and other Federal agencies.

2/The Source Evaluation Boards consisted of senior program officials and representatives of DOE's procurement office, Office of General Counsel, and Office of Environment.

3/There was one Senior Review Board for each round. It consisted of Deputy Assistant Secretaries from the cognizant DOE program organizations and representatives from DOE's procurement office and Office of General Counsel.

policy factors is included as appendix I to this report. Based on a review of the evaluation reports submitted by the Source Evaluation Boards and the application of program policy factors, the Senior Review Board made its recommendations to the Under Secretary of Energy who made the final selections.

## CHAPTER 2

### DOUBTS CONCERNING THE INTEGRITY OF THE PROCESS USED TO SELECT ALCOHOL FUELS AWARDEES

Because of certain events which occurred in the process DOE used to select alcohol fuels feasibility study and cooperative agreement awardees, it is doubtful whether DOE selected the best proposals for award. Proposals with high technical evaluation scores frequently lost out to proposals with lower scores. This occurred because DOE excessively, and sometimes inconsistently, applied nontechnical objectives set forth in program policy factors in making its selections. There was no guidance to govern how these program policy factors should be applied. In addition, during one competition, cost and business management evaluations were altered from those prepared by the proposal evaluation team prior to being submitted by the Source Evaluation Board to the Senior Review Board. A rating that had been altered contributed to the top ranked proposal not being selected for award. We found that the selection of lower ranking proposals over higher ranking proposals was not unique to the feasibility study and cooperative agreement competitions. This also occurred in DOE's small-scale alcohol fuels technology grants competition.

#### PROGRAM POLICY FACTORS APPLIED EXCESSIVELY AND INCONSISTENTLY

DOE made a substantial effort to ensure that the proposals it received were given a proper technical evaluation as a basis for making award selections. Through excessive application of program policy factors, however, DOE often disregarded these technical evaluations and frequently selected projects with lesser technical merit. DOE, in some cases, was also inconsistent in how it applied these factors during individual competitions. The lack of guidelines on how these program policy factors should be applied contributed to these events.

#### Technical evaluations frequently disregarded in making award selections

DOE expended considerable time and effort evaluating proposals prior to making award selections. During both rounds in the alcohol fuels technology area, DOE evaluated a total of 1,053 proposals. In evaluating these proposals, DOE involved as many as 150 people, including personnel from DOE headquarters and field offices, Government-owned, contractor-operated laboratories, and other Federal agencies. These evaluators spent 6 weeks during the first round and 4 weeks during the second round working full time evaluating each proposal.

Once DOE completed its evaluations and developed proposal rankings, however, it frequently disregarded the evaluation results in selecting awardees. DOE passed over many higher ranked proposals to select proposals ranked much lower. For example, in the first round feasibility study competition, DOE selected proposals ranked as low as 150th while passing over proposals ranked as high as 12th. The extent to which high ranking proposals were passed over to select proposals of lesser technical merit is set forth in the table below.

<u>Round I</u>	<u>Number of awards selected</u>	<u>Number of high ranking proposals passed over in making awards</u>	<u>Highest ranking proposal passed over</u>	<u>Lowest ranking proposal selected for award</u>
Feasibility studies	44	106	12	150
Cooperative agreements	2	2	1	4
<u>Round II</u>				
Feasibility studies	12	41	3	53
Cooperative agreements	6	31	3	37

The differences in technical rank would have been relatively insignificant if those proposals passed over and those selected were of roughly equal quality as reflected by technical evaluation point scores. We found, however, that a wide gap existed in the technical evaluation scores between the highest ranking proposals not selected and the lowest ranking proposals selected. For example, expanding upon the data presented in the above table, in the second round cooperative agreement competition, the 3rd ranked proposal which was not selected scored 258 points higher (out of 1,000 points possible) than the 37th ranked proposal which was selected. In the other competitions, the comparable point differentials were 192, 61, and 182 points respectively.

The primary rationale given by DOE in selecting lower ranked proposals over higher ranked proposals was the desire to achieve nontechnical objectives set forth in its program policy factors. While most of the program policy factors were applied at least one time in justifying award selections, a particularly important factor in the alcohol fuels competitions was the desire to have geographic balance among awardees. For example, in justifying the first round feasibility study selections, the Under Secretary stated his belief that in establishing a domestic alcohol fuels

industry, a dispersed industry would be most effective. With this in mind, the Under Secretary went on to select projects in 37 different States. In the second round feasibility study competition, the Under Secretary noted that in making his initial selections in all technologies, including alcohol fuels, there was a slight geographic imbalance among the awardees. He further stated that the alcohol fuels area provided an opportunity to correct the imbalance and accordingly made two more selections involving two States where awards had not been made.

We have no basic disagreement with the application of program policy factors to improve the quality of awards selections. We question, however, whether these factors should have such importance as to override as much as 258 points differences in technical scores and to result in such a large number of high ranking proposals being passed over. Accordingly, we believe DOE's application of program policy factors in the alcohol fuels competitions was excessive.

#### Inconsistent application of program policy factors

In addition to applying its program policy factors excessively, DOE also did not always apply these factors consistently. DOE sometimes applied a factor at one point in making its selection decisions but did not apply it at other points. For the most part, this inconsistent application involved the program policy factor focusing on the desire to minimize Federal costs for the proposed project in relation to the annual alcohol output from the proposed plant (Federal cost to output ratio).

In both feasibility study competitions, DOE cited the Federal cost to output ratio as justification for its selections even though proposals with more favorable Federal cost to output ratios and higher technical scores than those selected were passed over. For example, in the first round competition, 11 of the top 13 proposals that had been passed over had Federal cost to output ratios that were as good or better than proposals that were selected. Also, while most of the proposals, both those selected and not selected, had Federal cost to output ratios less than \$0.25 per gallon, one proposal was selected for an award even though its Federal cost to output ratio was an extremely unfavorable \$20 per gallon. In the second round feasibility study competition, DOE also justified selecting several proposals based on their very attractive Federal cost to output ratios. However, DOE ignored the factor when it selected four lower ranking proposals over three higher ranking proposals even though the higher ranking proposals had significantly better Federal cost to output ratios. In this competition, DOE also applied the program policy factor dealing with the desire to involve small businesses in the awards as a reason for selecting the 18th and 33rd ranked proposals. The same result, however, could have been accomplished

by selecting the 10th and 12th ranked proposals which were also small businesses.

In the first round cooperative agreement competition, DOE also cited the Federal cost to output ratio as rationale for passing over the top ranked proposal to choose the second ranked proposal. This factor was not applied, however, when the third ranked proposal was passed over to select the fourth ranked proposal, even though the higher ranked proposal which was passed over also had a markedly better Federal cost to output ratio.

The chairman of DOE's Senior Review Board during the second round defended DOE's award selections. He stated that the program policy factors were applied as a group, not individually. In making award selections, he said DOE had the flexibility to apply different program policy factors at different times. Thus, while any individual program policy factor might not have had equal weight in all situations, he believed that viewed as a group, DOE did not apply its program policy factors inconsistently.

#### Lack of guidelines for applying program policy factors

In conducting the feasibility study and cooperative agreement competitions, DOE did not provide guidelines for applying program policy factors during the selection process. Selection officials had the flexibility to apply or not apply the factors as they wished. Our review of the alcohol fuels selections demonstrates the extent to which the program policy factors could be applied to override detailed assessments of technical merit. In the alcohol fuels area, DOE's excessive application of program policy factors significantly reduced the integrity of the awards selection process.

In a previous report dealing with the feasibility study and cooperative agreement competitions in coal conversion and oil shale technologies, 1/ we cautioned that special care would have to be taken in applying program policy factors to avoid inferences of impropriety and maintain the integrity of the selection process. We believe a way of achieving this result would be for DOE to prepare and implement guidelines on the use and appropriate limits of program policy factors in the awards selection process. Such guidelines should serve to prevent the kind of excessive and inconsistent application of program policy factors which occurred in the alcohol fuels competitions and thereby preserve the integrity of the selection process.

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1/"Special Care Needed in Selecting Projects for the Alternative Fuels Program" (EMD-81-36, Dec. 8, 1980).

ALTERED BUSINESS MANAGEMENT  
EVALUATIONS IMPACT AWARD  
SELECTIONS

The integrity of DOE's awards selection process was further reduced in one of the competitions by the manner in which DOE arrived at cost and business management evaluations for the proposals submitted. In addition to scoring each proposal according to its technical criteria, DOE's cooperative agreement proposal evaluation process included an evaluation of each proposal's business management and cost reasonableness aspects. Our review showed that in the first round cooperative agreement competition, many of these evaluations were altered after being prepared by the evaluation team. While the altered ratings were not intended to impact on awards selections, according to the Source Evaluation Board chairman, the top ranked proposal whose rating had been altered was not selected. The Under Secretary cited the proposal's "unsatisfactory" rating as a decisive factor in the decision not to select this project.

Circumstances surrounding  
altered ratings

In evaluating cooperative agreement proposals, DOE assigned its evaluation teams the responsibility for conducting a cost and business management evaluation in addition to scoring each proposal according to technical criteria. Unlike the technical evaluations where point scores were assigned, the cost and business management evaluations resulted only in adjective ratings such as "satisfactory" or "unsatisfactory." As with the technical scores, however, the evaluation teams developed these ratings using a consensus approach and then forwarded them to the Source Evaluation Boards.

In the first round cooperative agreement competition, we found that 64 evaluations, or about half out of the 139 cost and business management evaluations prepared, were altered from those consensus assessments arrived at by the evaluation team. In each case, the evaluations were changed from "satisfactory" to "unsatisfactory." The changes were made by one individual member of the evaluation team during a weekend after the evaluation team had devoted 6 weeks developing its report and had disbanded. The team member did not discuss the changes with, or obtain agreement from, the other members of the team. He obtained approval to make the alterations from the Source Evaluation Board chairman.

Explanations of why the ratings were altered vary. The individual who made the changes told us the changes were necessitated because a computer program that combined ratings from each individual cost and business management category into overall proposal ratings was too liberal and mischaracterized the overall business management capability of the proposers. For example, he said the computer program was structured such that if a proposer received a "satisfactory" rating in any two of the business

management rating categories, the proposal would receive an overall "satisfactory" rating. The individual team member who made the changes said he disagreed with this approach because he believed some of the rating categories were more important than others and that such weighting should have been considered in tabulating the overall ratings. Based on this belief, he obtained the approval of the Source Evaluation Board chairman and made independent changes to the ratings. The Source Evaluation Board chairman told us he agreed to authorizing revised ratings after the individual team member had convinced him that the initial ratings were too liberal, particularly as they affected new ventures and small businesses.

The evaluation team cochairman responsible for this portion of the evaluation and another evaluation team member expressed a considerably different viewpoint. They told us the computer program was developed in a manner which would assign an overall "satisfactory" rating only if the proposal had received a "satisfactory" score in each of four particularly important categories. This view was confirmed by a representative of the computer firm contracted to develop the program that tabulated the overall ratings. The representative told us that because of time constraints and limited usefulness for other applications, the computer program was not documented and was therefore not subject to our making an independent verification.

The evaluation team cochairman and team member also told us that they believe the individual who changed the ratings had displayed a real bias against proposals submitted by small businesses and newly formed ventures during the evaluation team's 6-week deliberations. They said he frequently argued that such proposers should not receive "satisfactory" evaluations because they did not have proven financial and managerial capability. The individual team member making the changes confirmed to us that in making his changes he especially looked for proven managerial ability to justify a "satisfactory" rating. He said he tended to doubt the capability of new ventures.

The cochairman, on the other hand, disagreed. He contended the alcohol fuels industry is one of the few alternative fuels industries where it is possible for small and newly formed businesses to enter because significantly less capital investment is required to build an alcohol plant than to build plants in many other alternative fuels technologies. Also, he said firm financing commitments are usually negotiated with companies chosen for awards after the selection announcements are made. This is especially true, he said, because many private financing institutions will not make a firm commitment to provide financing to a proposer until after Federal funding is reasonably assured.

#### Altered ratings affected selections

The Source Evaluation Board chairman told us that it was not his intent in authorizing revised ratings to diminish the chances

of any proposal being selected for award. Instead, he said he authorized the revisions only to alert selection officials that if any of the proposals involved were selected for award, some additional negotiations with the proposer would be necessary.

Despite this viewpoint, an altered business management evaluation was a decisive factor in DOE's decision not to select the top ranked proposal for award. This was the only top-ranked proposal in either round of the alcohol fuels competitions not selected for an award. In this case, the "unsatisfactory" rating of the top ranked proposal--a new venture formed through the merger of a cattle feedlot operator and a local fuel distributor--was cited by the Under Secretary as justification for passing over the proposal and selecting two other proposals both of which were submitted by large businesses and involve the participation of major oil companies.

In commenting on these events, a DOE official who was a member of the first round Senior Review Board expressed the view that the rating changes that occurred were not alterations but simply part of the process used to arrive at final Source Evaluation Board ratings. He said that all ratings developed prior to final approval by the Source Evaluation Board chairman were not official and were subject to change. He therefore believed the ratings provided to the Senior Review Board represented the official position of the Source Evaluation Board and hence were a valid consideration for the Senior Review Board in making its selection recommendations.

We nonetheless believe the altered ratings reduced the integrity of the awards selection process and that DOE needs to establish guidelines for handling minority evaluation viewpoints to prevent similar problems in future competitions.

LOWER RANKING PROPOSALS SELECTED  
IN ALCOHOL FUELS SMALL-SCALE  
TECHNOLOGY GRANTS PROGRAM

The failure to select awardees in accordance with technical merit was not restricted to the feasibility study and cooperative agreement competitions. We found that this also occurred in the small-scale alcohol fuels technology grants competition. DOE conducted that competition in two phases. In the first phase, where nearly 80 percent of the awards were made, DOE frequently selected lower ranking proposals over higher ranking proposals. Further, no documentation existed in support of the selections. DOE took steps which greatly improved the selection process employed during the second phase of the competition.

Description of the small-scale  
technology grants competition

The basic goal of the alcohol fuels small-scale technology grants awards was to increase the production and distribution of alcohol fuels and associated by-products by providing small grants

for research, development, and demonstration. Accordingly, DOE earmarked funds to provide grants of up to \$50,000 to individuals, small businesses, nonprofit institutions, State and local governments and Native American tribes submitting unsolicited proposals in a number of technical areas including improved fermentation processes for producing alcohol, improved use of by-products from alcohol fuels production, and newly designed processes for using unconventional feedstocks to produce alcohol.

The competition was conducted in two phases. The first phase involved a spin-off of a broader DOE appropriate technology 1/grants program announced in February 1980 by DOE's Office of Small-Scale Technology. In that effort, DOE sought proposals in a wide variety of energy technologies including alcohol fuels. In response, DOE received almost 1,400 proposals relating to alcohol fuels. Due to the large number of proposals submitted in the alcohol fuels area and the recognized interest of DOE's Office of Alcohol Fuels (OAF) in funding many of the proposals dealing with alcohol fuels, a copy of each proposal dealing with alcohol fuels technology (following approval by the proposer) was transferred to OAF in May 1980 for consideration under OAF's program. In the first phase, OAF made 121 awards totalling about \$3.5 million.

The second phase was conducted independently by OAF through a notice of program interest issued in August 1980. A total of 565 proposals were received and, in March 1981, 32 proposals were recommended for award. The grants recommended for award involved more funds than the \$1.2 million available. Hence, this list of recommended awardees was pared down to 27 final awardees. Most awards were issued in July 1981 and the remainder are to be issued by the end of August 1981.

Technical evaluation scores  
frequently disregarded in making  
first phase award selections

As occurred in the feasibility study and cooperative agreement competitions, awards in the first phase of DOE's small-scale technology grants competition were made contrary to technical evaluation scores. In conducting the first phase of the competition, where nearly 80 percent of the awards were made, DOE evaluated each proposal according to 10 technical evaluation categories including originality, simplicity, and commercial potential,

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1/Appropriate technology is defined by DOE as technology appropriate to (a) the needs of local communities, (b) the use of renewable resources and the conservation of non-renewable resources, (c) the use of existing technologies applied to novel situations, (d) applications which are energy conserving, environmentally sound, small-scale and low cost, and (e) applications demonstrating simplicity of installation, operation, and maintenance.

with 100 points being the highest possible score. We found, however, that DOE frequently disregarded these evaluations in making its selections. For example, proposals receiving scores as low as 55 were selected while numerous proposals scoring 90 or higher were not. In selecting proposals for award, DOE had the discretion to apply program policy factors as was the case in the feasibility study and cooperative agreement competitions. While presumably these factors were used to override technical evaluations, there was no written record which explains or justifies the award selections made.

Evaluation and selection process  
much improved in second phase

DOE took steps to considerably improve the evaluation and selection process in the second phase. Initially, DOE conducted its second phase evaluation and made its award selections in the same manner as the first phase. However, prior to issuing any second phase awards DOE determined that the procedures it was using were not consistent with its regulations. DOE requires that all staff members participating in the proposal evaluation process submit statements certifying that they have no interests which would affect their objectivity. Because these statements were not filed, DOE determined that its selection decisions were not legally supportable. 1/ Consequently, following the recommendations of its General Counsel, DOE terminated the second phase selection process and directed that the proposals be reevaluated. Based on the reevaluation, a new list of awardees was prepared.

We examined the process used to reevaluate proposals in the second phase and found it to be much improved. All evaluators were required to sign a statement of freedom from conflict-of-interest. Proposals failing to meet eligibility requirements were eliminated and the remaining proposals were evaluated in accordance with three criteria. 2/ Based on the rankings prepared in

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1/This decision was included in a January 30, 1981, letter from the Secretary of Energy to Representative Richard A. Gephardt. The former Acting Director of OAF told us that freedom from conflict-of-interest statements had also not been filed during the first phase but because funds had already been dispersed, no comparable legal opinion was rendered.

2/These criteria were the (1) adequacy of the stated objectives to accomplish the proposed research, development, or demonstration effort, and probability of achieving the objectives; (2) adequacy of the facilities and techniques possessed or contributed relative to those necessary to achieve project objectives; and (3) adequacy of key personnel, including the principal investigator or team leader, and the proposed plan to successfully accomplish the research, development, or demonstration project.

accordance with these criteria, an evaluation panel recommended 32 proposals for awards. These 32 were selected from the top 38 ranked proposals. DOE provided written justification for passing over those six highly ranked proposals not selected. The 27 final awardees were then selected from this list of 32 recommended awardees.

Although DOE's process was much improved during the competition's second phase, we are concerned that the improvements were of an ad hoc rather than permanent nature. Accordingly, we believe the guidelines for applying program policy factors, previously discussed in the context of feasibility study and cooperative agreement competitions, could also benefit any future small-scale technology grants competitions.

CHAPTER 3

FEASIBILITY STUDY AND COOPERATIVE

AGREEMENT AWARDS TO SMALL BUSINESS

LESS THAN ANTICIPATED

With respect to the relative success of small and large businesses in winning alcohol fuels feasibility study and cooperative agreement awards, we found that despite expectations to the contrary the small business share of these awards was limited. Several features in DOE's evaluation criteria and process contributed to this limited success. In our May 1981 report 1/ dealing with awards in non-alcohol fuels technologies, we noted that small business proposers received a minor portion of the awards selections. DOE officials stated that the capital-intensive nature of the non-alcohol fuels technologies made awards to large businesses inevitable. They said, however, that for a variety of reasons, including greater DOE emphasis on small business participation, the less capital-intensive nature of alcohol fuels technology, and the larger number of high-quality small business proposals, better small business success could be anticipated in the alcohol fuels competition. Our review showed that this did not occur.

SMALL BUSINESSES RECEIVED

MINOR PORTION OF ALCOHOL

FUELS AWARDS FUNDING

Small businesses received about 25 percent of the number of alcohol fuels awards and only about 11 percent of the funding. Large businesses received about 90 percent of the funds. The small business share of funding was less than that received in the non-alcohol fuels technologies even though alcohol fuels plants require much less capital to build. The number and amount of awards and the percentage of funding made to large and small businesses in the alcohol fuels competitions are shown on the following page.

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1/"Large Businesses Dominated Awards Made Under DOE's Alternative Fuels Program" (EMD-81-86, May 15, 1981).

		<u>Awards</u>	
	<u>Number</u>	<u>Amount</u>	<u>Percentage of funding</u>
Large business	42	\$108,949,813	87
Small business	17	14,251,377	11
Other (note a)	<u>5</u>	<u>2,043,333</u>	<u>2</u>
Total	<u>64</u>	<u>\$125,244,523</u>	<u>100</u>

a/Proposers who could not be classified as either large or small businesses with the information available.

Among awardees classified as large businesses, those with extensive assets were dominant. About \$62 million, or nearly half of the total awards funding, was made to proposers with assets of \$1 billion or more. Another \$34 million was made to proposers with assets of more than \$100 million but less than \$1 billion.

#### DOE EVALUATION CRITERIA AND PROCESS PLACED SMALL BUSINESS PROPOSERS AT A DISADVANTAGE

The approach DOE used in conducting its competitions contributed to the limited success of small businesses in winning alcohol fuels awards. The evaluation criteria used by DOE favored proposers with established reputations and considerable resources. Further, the nature of the evaluation process itself made it more likely that large companies would receive the bulk of the awards. DOE officials involved with evaluating alcohol fuels proposals generally agreed with these observations. In addition, many small business proposers believed DOE treated them unfairly during the competition.

#### Evaluation criteria and process

The evaluation criteria and process DOE used to select alcohol fuels awardees provided an advantage to large companies. 1/ Concerning the evaluation criteria, demonstrating the likelihood that the proposed project could be carried through to successful

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1/DOE's feasibility study and cooperative agreement competitions for alcohol fuels were conducted as part of an overall alternative fuels competition encompassing numerous technologies. Hence, the evaluation criteria and process DOE used to evaluate alcohol fuels proposals was the same as that used to evaluate non-alcohol fuels proposals. The impact of these factors on small business proposers in the non-alcohol fuels technologies was noted in our May 15, 1981, report which was discussed previously on page 1.

commercialization was considered by DOE to be the most crucial aspect of the proposal. In this context, corporations with large technical and support staffs, considerable financial resources, and extensive past experience were in a better position to demonstrate such likelihood and justify an award, than small businesses without such resources. The advantage to large business proposers was present in numerous elements of the criteria. The advantage was most clear in the "proposer capability" category which addressed factors such as prior experience and financial capability. However, other criteria, such as the capability of performing environmental analyses and the adequacy of the project management plan, also aided large businesses' chances.

The nature of the process used to evaluate proposals also contributed to the better success of large corporations in receiving awards. As structured by DOE, the competition hinged on the preparation of a quality proposal. Because of the large number of proposals received--particularly in the alcohol fuels area where 504 proposals were received in the first round and 549 in the second round--DOE restricted the evaluation to information presented in the proposals. No site visits or supplementary discussions with proposers were permitted. Consequently, the process was primarily a competition among proposals. Under these circumstances, large businesses which are more likely to have considerable proposal writing resources and experience had an advantage over small business proposers. In addition, according to several small business proposers we spoke with, the cost of preparing a highly detailed proposal can be burdensome to small businesses.

#### Viewpoints of DOE proposal evaluators

The DOE officials responsible for evaluating alcohol fuels proposals submitted under the feasibility study and cooperative agreement competitions generally agreed with our observations concerning the evaluation criteria and process. The cochairman of the alcohol fuels evaluation team told us the evaluation team's understanding of the program was to get maximum production on line as quickly as possible, and that this objective was applied in performing the technical evaluations. They further stated that the evaluation criteria definitely gave an edge to larger, established businesses with large technical and support staffs and other resources not available to most small businesses. Finally, they told us that by centering the process around a competition among proposals, an advantage was provided to large businesses because they are more likely than small businesses to have extensive proposal writing resources and experience.

#### Viewpoints of small business proposers

The small business proposers we spoke with also expressed concern about the way DOE conducted the alcohol fuels feasibility study and cooperative agreement competitions. Many expressed

the view that DOE did not treat them fairly. They told us that despite indications during various preproposal conferences that small businesses would receive favorable consideration in the awards process, they believed DOE was actually disposed to selecting large businesses. Many told us DOE led them to believe the intent of the awards was to aid businesses that could not obtain funding otherwise. As a result, they said they spent a significant amount of time and much of their limited resources preparing a proposal for a competition where the majority of funds ultimately went to large businesses. These proposers were left highly disillusioned by DOE's selections.

Without some form of assistance, it is likely that small businesses will continue to have limited success in future alternative fuels competitions. In conducting its feasibility study and cooperative agreement competitions, DOE encouraged small businesses to submit proposals and included the desire to select small business proposals among its program policy factors. These steps, however, met with limited success. Based on these results, an increased commitment to enhancing small business success is needed if increased small business success is to be achieved.

CHAPTER 4  
CONCLUSIONS, RECOMMENDATIONS,  
AND MATTERS FOR CONSIDERATION  
BY THE CONGRESS

CONCLUSIONS

In response to several congressional requests, we examined the alcohol fuels portion of DOE's feasibility study and cooperative agreement competitions from two perspectives. First, we assessed the criteria and process DOE used to evaluate proposals and make award selections. Second, we determined the extent to which awards were made to large and small businesses.

Concerning the evaluation criteria and selection process, we identified certain events that occurred which raise doubts as to whether the best proposals were selected for award. Although DOE spent substantial effort evaluating each proposal in accordance with technical criteria, these technical evaluations were frequently disregarded when DOE made its selections. We found that in many cases highly ranked proposals were passed over to select proposals with much lower rankings.

In overriding its technical rankings, DOE applied nontechnical objectives set forth in its program policy factors. Application of such factors can be a valid part of the proposal selection process. However, during the alcohol fuels competitions, these factors were applied excessively and sometimes inconsistently. When the factors are used to override technical evaluations as frequently and as inconsistently as they were in the alcohol fuels competition, there is little assurance that the best proposals were selected.

DOE did not establish guidelines on applying program policy factors during its feasibility study and cooperative agreement competitions. Selecting officials had the flexibility to apply these factors when and how they saw fit. As a result, technical evaluations were frequently disregarded and projects with lesser technical merit were selected. For example, in one case DOE applied its program policy factors to justify selecting a proposal which received a technical evaluation score 258 points lower than a proposal it did not select. DOE's excessive and inconsistent application of program policy factors significantly reduced the integrity of the awards selection process. To better assure that technical evaluations are not excessively disregarded in future competitions, DOE needs to establish guidelines on applying program policy factors. These guidelines should set forth appropriate limits on the importance these factors should have in the selection process and assure that when applied, the factors be applied consistently to all proposals.

The integrity of DOE's awards selection process was further reduced in one competition--first round cooperative agreements--by the manner in which the cost and business management ratings were made. After the evaluation team reached a consensus position on these ratings, one member of the team altered nearly half of the ratings. The team member made the changes without consulting or obtaining agreement from any of the other team members including the team co-chairman responsible for that part of the evaluation. The team member independently convinced the Source Evaluation Board chairman that the consensus ratings were too liberal--particularly concerning those proposals submitted by small businesses and new ventures--and received authorization to make changes independently. The ratings as changed by the individual team member thereby became the official Source Evaluation Board ratings submitted to the Senior Review Board. While the Source Evaluation Board chairman said the changes were not intended to impact on the awards selections, in at least one case an altered rating had an impact. In this case, the top ranked proposal in terms of technical merit, which had its initial "satisfactory" rating altered to "unsatisfactory," was not selected for award. The Under Secretary cited the proposal's "unsatisfactory" rating as a decisive factor in his decision.

When consensus evaluation team ratings are altered as occurred in the first round cooperative agreement competition, the integrity of the award process is reduced. DOE has no guidelines for treating minority viewpoints during the evaluation process. Guidelines which set up a mechanism for dealing with such viewpoints in future competitions are needed. Such a mechanism should provide a forum for expressing the minority viewpoint, such as a minority report, and provide decisionmakers with a basis to thoughtfully assess the merits of both the majority and minority positions. Had such a mechanism existed, the rating alterations that occurred in the first round cooperative agreement competition could have been prevented.

The selection of lower ranking proposals over higher ranking proposals was not unique to the feasibility study and cooperative agreement competitions. This also occurred in DOE's small-scale alcohol fuels technology grants competition. During the first phase of this competition, where nearly 80 percent of the awards were made, DOE frequently disregarded assessments of technical merit in making its awards selections. DOE took steps to greatly improve its selection process in the second phase of this competition. While improvements were made, we are concerned that the improvements were of an ad hoc rather than permanent nature. Accordingly, we believe the guidelines developed to improve the process for selecting any future feasibility study and cooperative agreement awardees could also be beneficially applied to any future small-scale technology grants competitions.

Concerning the relative success of large and small businesses in obtaining alcohol fuels feasibility study and cooperative agreement awards, we found that large businesses dominated the awards,

receiving almost 90 percent of the funds. Small businesses were selected for about 25 percent of the number of awards and about 10 percent of the funding. The small business share of the funding was less than it received in the non-alcohol fuels awards even though small businesses submitted more alcohol fuels proposals and despite the fact that alcohol fuels projects are much less capital-intensive.

Advantages provided in DOE's proposal evaluation criteria and the nature of the evaluation process itself contributed to the dominance of large businesses. The criteria favored proposers with established reputations and considerable resources. The evaluation process, by being structured primarily around a competition among proposals, also gave an advantage to large businesses which are more likely to have considerable proposal writing resources and experience upon which to draw. These observations were shared by DOE's alcohol fuels proposal evaluators. In addition, a number of small business proposers felt they had not been treated fairly during the competition, alleging that DOE was more favorably disposed to selecting large businesses for awards.

#### RECOMMENDATIONS

To enhance the integrity of DOE's proposal evaluation and selection process in any future alternative fuels competitions, we recommend that the Secretary of Energy establish guidelines governing the application of program policy factors in the selection process and the treatment of minority viewpoints during the proposal evaluation process. Concerning the program policy factors, these guidelines should set forth appropriate limits on the importance attributed to program policy factors in the selection process and direct that when applied, the factors are applied consistently to all proposals. With respect to the treatment of minority views, the guidelines should provide an equitable mechanism for hearing and considering those views, perhaps in minority report format, while still maintaining the consensus viewpoint for consideration.

To improve the success of small businesses in obtaining any future DOE alternative fuels awards, the Secretary should strengthen DOE's commitment toward enhancing small business involvement. While implementing this commitment could involve a number of specific steps, we believe some of the more obvious ones include providing assistance to help small businesses prepare better proposals, placing small business advisors on proposal evaluation teams, and establishing targets for small business involvement.

#### MATTERS FOR CONSIDERATION BY THE CONGRESS

Large businesses dominated awards in both the alcohol fuels and non-alcohol fuels aspects of DOE's alternative fuels competitions. Concerning the non-alcohol fuels awards, this result

may be attributable in large measure to the capital-intensive nature of the technologies. Alcohol fuels plants, however, require considerably less capital. Accordingly, small businesses should have been able to compete for awards more effectively. Instead, they received a smaller share of available funding. Because of this, we are concerned that small businesses will also not fare well in any future competitions. While we have made recommendations to the Secretary of Energy aimed at enhancing small business involvement in future competitions, the Congress may also want to closely monitor the success of small businesses. In the event that a desired level of small business success is not achieved, the Congress may want to consider enacting legislation to obtain more substantial participation by small businesses in these activities.

PROGRAM POLICY FACTORS USED BY DOE IN  
SELECTING FEASIBILITY STUDY AND  
COOPERATIVE AGREEMENT AWARDEES

1. The need to expedite the commercial development of a suitable range of alternative fuels.
2. The desire to select for award or support a group of projects which represent a diversity of methods or approaches.
3. The desire to obtain maximum possible leverage in the use of Federal funds in giving non-Federal entities a broad incentive to commercialize the technology or resources.
4. The desire to proceed as rapidly as possible in the development of those projects offering the best potential for reducing the dependence on foreign supplies of energy resources.
5. The desire to select projects which seem most likely to lead to other commercial-scale projects and to cause the most expeditious overall increase in domestic production at the earliest time practicable.
6. The desire to select projects that provide for regional energy requirements and geographic balance.
7. The desire to select projects that will entail the substantial involvement of small and disadvantaged businesses and/or Indian tribes in the design, construction, and operation of alternative fuel facilities.
8. The desire to select projects which are capable of maintaining or improving the quality of the environment and of mitigating any undesirable environmental, health, or safety impacts.

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